Remarks

Claims 41 to 52 are cancelled and claims 53 to 64 are added. Claims 53 to 64 are pending in this application of which only claim 53 is in independent form.

Claims 41, 44 and 49 had been rejected under 35 USC 103(a) as being unpatentable over Miyagi in view of Zonneveld. The following will show that independent claim 53 patentably distinguishes the applicants' invention over this combination of references.

On page 3 of the Examiner's Answer, Miyagi is characterized as having:

> "... an imaging recording module (20 and 25) for recording said data image (from 28a-c) and an object image (from 23) of said object (not shown); "

Applicants respectfully disagree with the above characterization of elements 20 and 25 of Miyagi. Item 20 is an endoscope used to obtain an image of an organ of a patient. The endoscope 20 is described in Miyagi in column 2, lines 40 to 53, as follows:

> "More specifically, this endoscope 20 has a body 21 and a hard-tube 22 extending from the body 21. The tube 22 has an illuminating window and an observing window (both not shown) formed in a distal end of the tube 22. An illumination light is supplied from the illuminating window through a bundle of optical fibers extending through the body 21 and the tube 22. An image sensor 23 such as a CCD or the like is faced with the observing window through a lens. This image

> sensor 23 is connected to a control unit 25 (control means) through signal wires 24. This control unit 25 is operated to control the image sensor 23, prepares a television signal based on a picture signal from the image sensor 23 and sends it to the monitor television 30." (emphasis added)

From the above, it can be seen that the endoscope supplies light to the area of interest in the patient and sends back an image which is converted into an electrical signal by an image sensor 23 at the distal end of the endoscope. As shown in FIG. 1 of Miyagi, this signal passes via signal wires 24 to the control unit identified by reference numeral 25. A sphygmomanometer 28a, a heartbeat meter 28b and electroencephaloscope 28c are all connected by separate wires to the control unit 25 and only to the control unit. Thus, this image data is sent only from the control unit into one of two parallel beam paths of a surgical microscope via auxiliary receiving portion 11a'.

The control unit 25 can in no way be interpreted as part of a recorder but instead functions to prepare a picture signal indicative of a numeric figure based on blood pressure data obtainable from the sphygmomanometer 28a and prepares a picture signal representative of a numeric figure and a waveform based on heartbeat data obtainable from the heartbeat meter 28b and prepares a picture signal indicative of a waveform based on brain wave data obtainable from the electroencephaloscope 28c.

As noted in Miyagi, starting at column 2, line 64, the control unit combines the signals obtained from sphygmomanometer 28a, heartbeat meter 28b and electroencephaloscope 28c and combines them:

> "... with the picture signal from the image sensor (23), and sends them to the monitor television 30. As a consequence, the numerical figures and waveforms are displayed in a certain area, for example, a right and down corner area of the screen of the monitor television 30." (parenthetical numeral added)

From the above, it can be seen that the elements 20 and 25, which are viewed as being an image recording module in the Examiner's Answer, are really an image data supply for supplying image data to the auxiliary receiving portion 11a' shown in FIG. 1 of this reference.

On page 8 of the Examiner's Answer, the Examiner states that her position is:

> "... that the control unit 25 must record information about these images in at least as far as temporary memory is used in the control system when controlling/directing the information to monitor 30. Therefore the control unit is considered an image recording module." (emphasis added)

Applicants respectfully submit that equating a temporary memory to the image recording module as set forth in applicants' claim 53 is erroneous and suggest that their image recording module be considered in the context of their disclosure and claims.

The signal which is provided by the applicants' image recording module is applied to a video-recorder/monitor connected to the mixer. A video-recorder supplies a video documentation. The signal provided by the control unit of Miyagi is provided as a temporary image for supplying image data to the auxiliary receiving portion 11a' for reflection into one of two beam paths

rather than one for video recordation as in the case of the video-recorder/monitor as set forth in applicants' claim 53.

Accordingly, there is nothing equivalent in Miyagi to the applicants' image recording module which is set forth in applicants' claim 53 with the clause:

> "an image recording module for recording said image data and an object image of said object;" (emphasis added)

Turning now to applicants' FIG. 6, the image data is taken from the image data supply 309 and is fed into a mixer 340 and the object image is supplied via the second beam splitter 314, lens 323 and image sensor 325. The output of image sensor 325 is also fed to the mixer 340. The output of the mixer is fed to the video-recorder/monitor 329. No such circuitry is suggested in Miyagi or the secondary reference, Zonneveld.

The control unit 25 in Miyagi is characterized in the action as a mixer. The control unit 25 is not a mixer in the sense of supplying the image data to an external video recorder/monitor but is instead part of image data supply because this is fed into one of two beam paths of the microscope 10 for viewing by the surgeon as explained above. In contrast to Miyagi, the object image in the applicants' invention is taken from the viewing beam path of the surgical microscope via the beam splitter 314 and fed to the mixer 340 via image sensor 325 as shown in applicants' FIG. 6. Even if the control unit 25 could be deemed to be a mixer, it is nonetheless part of the image data supply and is not a unit as in the applicants' invention wherein at least one input is from a very different source, namely, directly from the viewing beam path.

The Examiner responds on page 8 of the Examiner's Answer with the general statement:

> "In response to this argument against the references individually, one cannot show non-obviousness by attacking references individually where the rejections are based on combinations of references."

This is then followed in the Examiner's Answer with the argument:

> "It is noted that the combination of Miyagi and Zonneveld adds the flexibility of combining an image taken directly from the viewing path by a second beam splitter with the image data."

Applicants submit that neither reference shows a mixer that is connected to a video-recorder and no suggestion is made in the Examiner's Answer where a person of ordinary skill should hit upon the idea of using a mixer in the particular way that the applicants have claimed in very substantial detail in claim 53.

In the Examiner's Answer, the view is expressed on page 4, lines 2 to 4, that:

> "Miyagi discloses the claimed invention except for the object image being supplied from by said viewing unit; a second beam splitter mounted in said viewing beam path for directing said object image onto said image sensor."

The above is only a portion of what Miyagi does not show and applicants respectfully submit that Miyagi also does not disclose or suggest how the beam splitters can be limited to only two in number and yet perform all of the functions that the applicants' beam splitters provide.

The applicants' invention provides for only two beam

splitters which are arranged one atop the other as shown in applicants' FIG. 6. The first beam splitter is identified by reference numeral 313 and is mounted as set forth in claim 53 with the clause:

> "a first beam splitter mounted in said parallel beam path for receiving all of said parallel beam rays;"

Thus, in the applicants' invention the first beam splitter receives all of the parallel beam rays in the parallel beam path whereas in Miyagi and indeed, Zonneveld, two beam splitters are needed in separate beam paths for receiving respective portions of the parallel beam rays as clearly shown in FIG. 1 of Miyagi and in FIG. 1 of Zonneveld.

Applicants provide for a second beam splitter disposed between the first beam splitter and the objective and this beam splitter is defined with the clause:

> "a second beam splitter mounted in said parallel beam path for likewise receiving said parallel beam rays;"

Thus, both of applicants' beam splitters receive the same parallel beam rays in the parallel beam path. The second beam splitter is recited as:

> "... being disposed between said first beam splitter and said objective for receiving said object image directly from said objective and for directing said object image from said parallel beam path onto said image sensor;"

The above construction provides for a very compact surgical microscope with only two beam splitters. To emphasize that these two beam splitters are indeed the only beam splitters in the parallel beam path conjointly defined by the tubular lens and the

objective in the applicants' surgical microscope, claim 53 also includes the further feature and limitation:

> "said first and second beam splitters being the only beam splitters mounted in said parallel beam path;" (emphasis added)

If our person of ordinary skill seriously contemplated retrofitting Miyagi with Zonneveld, our artisan would have two sets of prisms mounted in separate beam paths and thus would have a microscope having four beam splitters, the first set from Miyagi and the second set from Zonneveld. Also, our artisan would somehow have to come up with the idea of not passing the image data through the very same two prisms from which the object image is obtained. Thus, somehow, our artisan would have to hit upon the idea of discarding the placement of separate prisms in the left and right beam paths as shown in the drawings of Miyagi and Zonneveld and to substitute a single prism to perform the function of introducing the image data into the beam path along which all of the parallel beam rays pass and then discard the second set of two prisms to substitute a second single prism therefor to direct only the object image from the parallel beam path onto the image sensor as required by applicants' claim 53.

The idea of using only two beam splitters one behind the other in the parallel beam path along which the parallel beam rays pass is taught by the applicants and nowhere is there any suggestion in the combination of Miyagi and Zonneveld to limit the beam splitters to two in number, let alone, arrange them one behind the other for receiving all of the parallel beam rays in the parallel beam path.

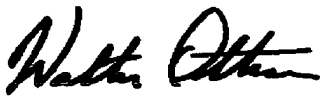
The applicants' invention provides a surgical microscope

which, with only two beam splitters in the parallel beam path, has a compact configuration. Accordingly, the applicants' surgical microscope has fewer optical elements to position and cement into position during manufacture leading to a higher accuracy of image transmission.

For the reasons advanced above, applicants submit that independent claim 53 patentably distinguishes their invention over the combination of Miyagi and Zonneveld and should now be allowable. Claims 54 to 64 are dependent directly or indirectly from independent claim 53 and should also now be allowable.

Reconsideration of the application is earnestly solicited.

Respectfully submitted,



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